

Diameter of eye.....	2 $\frac{1}{2}$
Dorsal—Distance from snout.....	13
Length of first spine.....	2 $\frac{1}{2}$
" second spine.....	4
" spine over anus.....	4
Anal—Distance from snout.....	37
Height at third ray.....	4 $\frac{1}{2}$
" at middle.....	4 $\frac{1}{2}$
Caudal—Length.....	8
Pectoral—Length.....	6

Monograph of the Tridigitate URANOSCOPOIDS.

BY THEODORE GILL.

In the "Synopsis of the Uranoscopoids" recently published in the Proceedings of the Academy of Natural Sciences, the discovery of two new species of the genus *Dactyloscopus* was noticed, and a promise was made to describe them at another time. The present memoir is accordingly devoted to the description of the three species of that genus now known and of an additional species representing a fourth very distinct group of the same family.

The discovery of the last mentioned type has necessitated a revision of the characters formerly given to the subfamilies of the Uranoscopoids, the form of the head presenting quite a decided difference. All of the species formerly known were distinguished by the cuboid form of the head, the superior surface of which was nearly flat; the eyes were also entirely superior and next to the sides, and the cleft of the mouth was almost vertical. Such were the characters common to all the species then known. But when engaged on the present monograph, two fishes were found which were readily ascertained to be most nearly allied to the *Dactyloscopi*, but which were distinguished from them by the remarkable shape of the head. The bones are so modified that instead of producing the normal cuboid form, they cause an elongated conical one, the height and width gradually decreasing toward the snout. The interorbital area is also very slight on account of the excessive narrowness of the frontal bones. Yet, notwithstanding such remarkable differences of form, none can remain doubtful concerning the affinity of the species to the *Dactyloscopi*. The general form of the body, the squamation, the character of the lateral line, the fringed opercula and lips, the membranous extension of the suboperculum and interoperculum, the character of the fins and all other essential characters are reproduced in the two forms. The arguments that were formerly adduced in favor of the pertinence of the *Dactyloscopi* to the same family as the *Leptoscopi* are equally applicable to the newly discovered form. The relative position of the dorsal and anal fins is even similar to that of the *Leptoscopi* and different from that characteristic of the *Dactyloscopi*. Three peculiar modifications of the elongated Uranoscopoid form are now known, and the propriety of referring them to a family distinct from the comparatively short Uranoscopoids, with more or less mailed heads, is correspondingly increased. But, for the present, all are still retained under the same family.

The following diagnoses of the subfamilies and their genera are given so as to distinguish them among the other groups.

Subfamily DACTYLOSCOPINÆ Gill.

Dactyloscopinæ Gill, Proceedings of the Academy of Natural Sciences of Philadelphia, 1859, p. 133.

" Gill, op. cit., 1861, p. 116.

The body is moderately elongated.
1861.]

The scales are moderate or rather small, cycloid, with subcentral or slightly eccentric nuclei, and with concentric striae. The lateral line runs for a short distance anteriorly on the sides of the back, is then much deflected, and then runs along the middle of the side to the caudal fin and is again deflected.

The head is cuboid and nearly plane above, and covered with the smooth and naked skin above as well as on the sides. The operculum is fringed behind; the preoperculum unarmed. The suboperculum and interoperculum have membranous extended borders.

The mouth is very oblique and nearly vertical. The lower jaw closes in front of the upper, and its periphery is semioval. The membranous fold between the limbs of the lower jaw is well developed, and conceals the front of the branchiostegal membrane.

The dorsal fin commences near the nape, and is continued nearly to the caudal fin; its rays in front are simple; the others are articulated.

The anal fin commences under the anterior portion of the anal fin, and is also much elongated and continued nearly to the caudal. The ventral fins are approximated, and each is composed of three simply articulated rays.

The relation of this subfamily to the Leptoscopinae has been previously exposed. The difference consists of the presence in the *Dactyloscopi* of only three articulated rays to the ventral fins instead of one spinous and five branched as in the Leptoscopinae. The dorsal of the latter is also as short or shorter than the anal and commences some distance behind the nape; in *Dactyloscopus* the dorsal fin commences immediately behind the nape, and is longer than the anal. The *Dactyloscopinae* are confined to the tropical American seas, while the *Leptoscopinae* are represented in the seas around the islands of Australia and New Zealand.

Genus DACTYLOSCOPUS Gill.

Dactyloscopus Gill Proceedings of the Academy of Natural Sciences of Philadelphia, 1859, p. 132.

" Gill, op. cit., 1861, p. 117.

The body is moderately elongated, its greatest height equalling about a sixth or seventh of the extreme length.

Head cuboid, oblong and nearly flat above. Eyes small and subcircular, separated by a considerable space, the frontal bones being of moderate width.

Mouth nearly vertical. Lower jaw not dilated beneath or emarginated in front, and without barbels. Intralabial filament obsolete.

Teeth villiform and only present on the jaws.

Dorsal fin with its origin near the nape, and with its first ten or twelve rays simple, and the rest articulated. Anal fin commencing under the anterior part of the dorsal.

Type. *Dactyloscopus tridigitatus* Gill.

DACTYLOSCOPUS TRIDIGITATUS Gill.

Dactyloscopus tridigitatus Gill, Proceedings Academy of Natural Sciences of Philadelphia, April, 1859, p. 132.

The greatest height is contained 14-100 times in the total length. The head from the closed lower jaw to the end of the bony operculum forms 19-100 of the length; its elevation above the inferior preopercular margin equals 11-19, and the height at the articulation of the lower jaw 9-19 of its length. Its greatest width equals 10-19 and that behind the eyes 7-19 of the same. The dorsal fin commences at the 18-100ths of distance from the snout. The caudal fin forms an eighth of the total length. The pectorals equal 16-100 of the same. The anterior part of the lateral line runs through eleven scales, is then deflected and runs very obliquely on four scales, and is thence continued along the fifth row from the back through thirty.

[Sept.

D. 12, 28. A. 2, 32. C. I. 1, 8, 1, I. P. 13. V. 3.

The color appears originally to have been nearly uniform and whitish blue or almost white on the trunk; when the scales are lost the apparent color is grayish, marbled or spotted with white. The head is whitish or grayish above, variegated with coarse meandering darker lines, which partly also extend on the suborbital region and cheeks. The preoperculum, and other opercular bones are mostly immaculate. The fins are also immaculate.

The body is slender and very gradually and with much regularity declines towards the caudal fin; it is also much compressed, especially posteriorly. The height is greatest at the front of the dorsal fin, and is there nearly equal to a seventh (14-100) of the total length. The height behind the last dorsal ray exceeds little more than a fourth of the greatest, and only equals a twenty-fifth part (4-100) of the length. The thickness at the bases of the pectoral fins is contained twelve times (8-100) in the length.

The head is plane above and angulated at the sides of its superior surface. From the tip of the closed lower jaw to the margin of the bony operculum it constitutes nearly a fifth (19-100) of the extreme length. Its height between the crown and the inferior margin of the preoperculum is much less than two-thirds of its length (11-100 of the total). The height at the articulation of lower jaw nearly equals a half of the length (9-100 of the total). The thickness of the head is greatest close behind the preoperculum, and exceeds a half of the length, or one-tenth (10-100) of the total; it thence gradually diminishes to the obtuse snout; behind the eyes, it equals seven-tenths of the greatest width, or 7-100 of the total length.

The eyes are moderate, circular and entirely superior. The diameter of the orbit is contained more than six times in the head's length, and equals 3-100 of the total length. The distance between the eyes equals two-thirds of the diameter, and the distance from the symphysis of the intermaxillaries a diameter.

The posterior border of the basal ridge of the preoperculum is nearly vertical, and descends toward the angle, which is rounded. The width of the preoperculum is greatest at the angle between the ridge and the free margin; it is there a half greater than the diameter of the eye ($\frac{1}{2}$ -100 of the total length). Near the free margin of the preoperculum, there is a band of paired pores.

The dentary on its posterior part has three broad transverse channels. The opercular fringe is composed of about fifteen distinct and free filaments.

The dorsal fin commences at 18-100 of the length from the upper jaw, and has forty or forty-one rays; about twelve of these are simple and inarticulated, while the others are articulated, and divided on each side of the mesial line to the base, but so connected as to appear like simply articulated rays, especially from a lateral view.

The anal fin commences under the sixth or seventh ray of the dorsal; it has about thirty-four rays; the first two are simple and inarticulated; the rest are divided to their bases and articulated.

The caudal fin is narrow, rather long, truncated behind, and furnished with eight branched rays, two articulated and two simple ones. The fin forms nearly an eighth (12-100) of the total length.

The pectoral fins are acutely angulated; the superior rays rapidly increase towards the fifth, which is longest, and equals the sixth (16-100) of the total length; the rays beneath rapidly decrease, and the margin of the fin converges toward the base, which extends very obliquely forward.

The ventral fins are each composed of three articulated and stout rays, but which are attenuated at the extremities. The external ray is shortest; the median is little longer than the internal, and equals an eighth (12-100) of the total length.

The scales are of moderate size and regularly imbricated. The lateral line 1861.]

runs along the second row of scales from the dorsal fin, through eleven scales, is moderately deflected on the eleventh, runs obliquely through four scales, and is again continued horizontally on the fifth row from the top through about thirty or thirty-one scales.

Total length, 3 inches,.....	100
Greatest height.....	14
Least height (behind last dorsal ray).....	4
Thickness at pectorals.....	8
Head—Length.....	19
Height over preoperculum.....	11
Thickness at preoperculum.....	10
“ behind eyes.. ..	7
Height at eyes.....	9
Interorbital area.....	2
Eye—Diameter.....	3
Distance from snout.....	3
Dorsal—Distance from snout.....	18
Caudal—Length.....	12
Pectoral—Length.....	16
Ventral—Length.....	12

The *Dactyloscopus tridigitatus* is readily distinguished among its congeners by its color and the number of scales through which the anterior elevated portion of the lateral line runs. The body is also comparatively slender, and the head short and narrow. The dorsal likewise commences at a greater distance from the head than in its nearest relation.

This species appears to be quite extensively distributed through the Caribbean sea. Three specimens, from which the species was originally described, were discovered at the island of Barbados. Another specimen is preserved in the Smithsonian Institution that was obtained at Garden Key, near the coast of Florida. Mr. Poey has also detected an individual of the same species on the Cuban coast, and has presented it to the Smithsonian Institution.

DACTYLOSCOPUS POEYI Gill.

The greatest height is contained 16–100 times in the total length. The head forms a fifth of the same; its height over the inferior preopercular border equals a half (11–20) and that at the eyes 9–20 of the length; its greatest width exceeds a half of its length, and that behind the eyes 8–20. The dorsal fin is distant a sixth (16–100) of its length from the snout. The anterior part of the lateral line runs through thirteen scales, is then deflected through three and afterwards runs along the fifth row from the back through about thirty-two.

D. 11, 31. A. 2, 32. C. 1, I. 8, I. 1.

The color is reddish brown, dotted with darker above the lateral line. The head is also blotched and dotted with darker, through which the ground color is exhibited in streaks and blotches, especially around the eyes. The operculum is variegated; the other opercular bones nearly immaculate.

The body has the same form as the *Dactyloscopus tridigitatus*, but is more robust; the greatest height exceeds a sixth of the total length, (16–100); the height at the caudal peduncle, behind the last dorsal ray, equals a fourth of the greatest length. The thickness at the breast equals two-thirds of the greatest height, (11–100 of the length).

The head is plane above and obtusely angulated at the sides of the plane. Its length constitutes a fifth (20–100) of the total. Its height between the crown and the inferior margin of the preoperculum exceeds half of its length, or 11–100 of the total. That at the articulation of the lower jaw does not equal half of the length, (9–100 of the total). The thickness of the head be-

[Sept.

hind the preoperculum exceeds a half of its length, or a ninth (11-100) of the total; that behind the eyes equals eight-elevenths of the greatest or 8-100 of the total length.

The eyes are similar to those of *Dactyloscopus tridigitatus*. The diameter of the orbit is contained nearly seven times (3-20) in the head's length, and equals 3-100 of the total. The distance between the eyes equals two-thirds of a diameter, and that from the snout a whole diameter.

The preoperculum has the same form and proportions as *Dactyloscopus tridigitatus*. The pores are very indistinct or obsolete.

The opercular fringe is formed by about eighteen filaments, the lowest of which are scarcely extended beyond the margin.

The commencement of the dorsal fin is distant from the snout a sixth (16-100) of the entire length. It has about forty-two rays, of which the first eleven appear to be simple and inarticulated, and the rest are divided as the typical species.

The anal fin commences nearly under the sixth ray of the dorsal fin; it has about thirty-four rays, the first two of which are simple and inarticulated. The rest are branched.

The caudal fin has ten articulated rays, of which eight are branched and two simple ones, one above and another below.

The scales are of moderate size and regularly imbricated. Each one is short or little oblong, with the nucleus little eccentric and with well defined concentric striae on the whole surface; there are no radiating grooves or ridges. The lateral line runs above through thirteen scales, is then deflected and continued very obliquely on three, and again runs through the fifth row from the back along about thirty-two scales to the caudal fin.

Total length, (2·6,).....	100
Greatest height.....	16
Height behind last dorsal ray.....	4
Thickness at pectorals.....	11
Head—Length.....	20
Height at preoperculum.....	11
Thickness at preoperculum.....	11
“ behind eyes.....	8
Height at eyes.....	9
Interorbital area.....	2
Eyes—Diameter.....	3
Distance from snout.....	3
Dorsal—Distance from snout.....	16
Caudal—Length, (assumed).....	12

This species is closely related to the *Dactyloscopus tridigitatus*, but is readily known by its color and the number of scales through which the anterior part of the lateral line runs, as well as by its stouter and more robust body, its longer and wider head and the less distance between the snout and the commencement of the dorsal fin. The caudal fin is mostly destroyed, and the above table of measurements has been calculated for the total length, on the supposition that the caudal fin, as in the type of the genus, bears the proportion to the entire length of twelve to a hundred. The pectoral and ventral fins have been also mutilated.

A single specimen of this species was obtained by my learned friend, the Professor of Zoology and Comparative Anatomy in the Royal University of Havana. In testimony of my appreciation of his labors to elucidate the natural history of Cuba, I have dedicated the species to him. The specimen has been presented to the Smithsonian Institution.

DACTYLOSCOPUS PECTORALIS Gill.

The greatest height is less than a seventh (15-100) of the total length. The 1861.]

head forms more than a fifth (21-100) of the same ; its greatest height above the preoperculum equals 12-21, and that at the articulation of the lower jaw 10-21 of its length. Its greatest width equals two-thirds (14-21), and that behind the eyes more than one-third (8-21) of its length. The dorsal fin commences at the eighteen-hundredths of the length. The caudal fin forms 14-100 of the total length ; the pectoral 22-100. The anterior part of the lateral line runs through thirteen scales, is deflected on three, and then continued along the fifth row from the back through twenty-four.

D. 12, 22. A. 2, 26. C. 1, 1, 4, 1, 1. P. 12. V. 3.

The color is a light brownish yellow, with dark spots on the back, arranged in lines forming the outlines of about six quadrangular areas, from the angles of which irregular lines proceed downwards and converge towards those departing from the angles of the adjoining areas. Such is the pattern of coloration, but it is subject to considerable irregularity. More scattered and irregular spots or dots are often present beneath the lateral line. The head is rather lighter and sometimes suffused with pink above. A transverse band or blotch divided in front is present between the orbits behind. Four rays also diverge in pairs from each orbit ; one from the front ; a bifurcated one from the antero-inferior angle ; and two from the posterior border. On the crown are two dark spots. There is a transverse sinuated nuchal line. Behind and below the orbit is a whitish area, with a dark spot before and behind. The upper angle of the operculum is whitish, bounded in front by a dark line or spot.

The height behind the nape is less than a seventh of the total length (15-100). That at the caudal peduncle behind the last dorsal ray equals a third of the greatest, (5-100 of the length). The thickness at the bases of the pectorals equals 12-100 of the length.

The head is not so plane as in the Caribbean species, and the sides less angulated. The length from the tip of the lower jaw to the end of the bony operculum constitutes more than a fifth (21-100) of the total. Its height between the crown and the inferior margin of the preoperculum exceeds twelve-hundredths (12-100) of the total length. The height at the articulation of the lower jaw equals a tenth (10-100) of the same. The width of the head behind the preoperculum equals a seventh (14-100) of the total length, while the width behind the eyes, is eight-fourteenths of the greatest, or 8-100 of the length.

The eyes are small, the diameter equalling a tenth (7-21) of the head's length ; they are separated from each other by a space equalling a diameter, and their distance from the upper jaw or snout is equal to a seventh (3-21) of the head's length.

The preoperculum has nearly the same form as that of *Dactyloscopus tridigitatus*, but it is rather broader at the angle ; the pores are well developed.

The opercular fringe is formed by about eleven or twelve free filaments.

The dorsal fin commences at 18-100 of the length from the snout, and has about thirty-four rays, the first twelve of which are apparently simple and articulated.

The anal fin commences nearly under the sixth or seventh dorsal ray, and has about twenty-eight rays, the first two of which are simple.

The caudal fin forms a seventh (14-100) of the total length. It has eight branched rays, two simply articulated ones, and two simple, one above and one below.

The pectoral fins have twelve rays, the fifth of which is longest, but the fourth and sixth are also much longer than the adjoining ones. The longest exceeds in length a fifth (22-100) of the entire length.

The ventral fins are similar in structure to those of its allies. The internal ray is as long or longer than the median, and equals an eighth (12-100) of the total length.

[Sept.

Total length, 1.7½.....	100
Greatest height.....	15
Height behind last dorsal ray.....	5
Thickness at pectorals.....	12
Head—Length.....	21
Height over preoperculum.....	12
Thickness at preoperculum.....	14
“ behind eyes.....	8
Height at articulation of lower jaw.....	10
Interorbital area.....	2
Eye—Diameter.....	2
Distance from snout.....	3
Dorsal—Distance from snout (symphysis).....	18
Caudal—Length.....	14
Pectoral—Length.....	22
Ventral—Length.....	12

This species is very distinct from the two West Indian species of the genus. It is readily distinguished by its different proportions. The head is longer, wider and higher than in its congeners; the caudal fin and especially the pectorals are larger, the number of dorsal and anal rays less, and the number of scales through which the posterior or median part of the lateral line runs is different. It is also readily recognizable by its different colors. The size to which it attains is much less, the average length being little more than an inch and a half.

Three specimens were obtained by Mr. John Xantus, at Cape St. Lucas, and have been sent by that indefatigable naturalist to the Museum of the Smithsonian Institution.

Subfamily MYXODAGNINÆ Gill.

The body is considerably elongated, the length being about ten times as great as the height.

The scales are moderate or rather small, cycloid, and with subcentral or slightly eccentric nuclei and concentric striae. The lateral line at first is on the side of the back, but is soon deflected and again runs in a straight line along the middle of the sides towards the caudal fin; then its end is again deflected.

The head is oblong or rather elongated, conical in profile, and more or less transversely arched above. The skin is smooth. The operculum is fringed behind. The preoperculum unarmed. The suboperculum and interoperculum have moderate or rudimentary extended membranous borders.

The mouth is moderately oblique and never subvertical. The lower jaw is prominent.

The membranous fold between the limb of the lower jaw is small or rudimentary and only developed anteriorly.

The dorsal fin is much elongated, but commences far from the nape, and is as short as, or shorter than, the anal. It arises behind the vertical of the anus.

The anal fin is very elongated.

The ventral fins are approximated, and each has three simply articulated rays.

This group is very closely related to the Dactyloscopinæ, but differs so much in the form of the head that its affinities at first might well be overlooked.

Genus MYXODAGNUS Gill.

The body is quite slender, the greatest height being contained about ten times in the length.

1861.]

Head rather elongated and acutely conical, about twice as long as high. Eyes large and elliptical, and very closely approximated. The frontal bones are extremely narrow.

Mouth oblique. Lower jaw projecting much beyond the upper and furnished with a short compressed and wide flap or barbel in front of the symphysis.

Villiform teeth present only on the jaws.

Dorsal fin behind the vertical of the anus, and furnished with simple and articulated rays. Anal fin as long as or longer than the dorsal.

MYXODAGNUS OPERCULARIS Gill.

The body is highest in front of the dorsal fin, and nearly equals at that place a tenth of the total length; thence it regularly declines towards the caudal fin, and, behind the dorsal, is less than a third of the height in front. The width at the bases of the pectorals is equal to two-thirds of the greatest height, or 6-100 of the length.

The head is acutely conical and elongated; from the tip of the lower jaw to the end of the bony operculum it forms a sixth (17-100) of the entire length; from the front of the upper jaw to the same place, 16-100. Its greatest height at the vertical of the preopercular margin exceeds a half (9-17) of its length; that behind the eyes more than a third, (6-17). The profile is nearly straight, but very slightly concave in front of the eyes. The crown is transversely arched and smooth. The width at the preoperculum equals 7-17 of its length; the width behind the eyes a quarter of the same. The frontal bones between the eyes are exceedingly narrow, so that the orbits appear to be separated by little more than a mere septum.

The eyes are longitudinally elliptical and of large size. The long diameter of the orbit nearly equals the thickness behind, or quarter of the head's length. The distance between the snout or symphysis of the upper jaw and the orbit equals three-fourths of a diameter.

The posterior margin of the preoperculum is much less than the inferior and nearly vertical; the latter is oblique. The breadth is greatest at the angle. The pores are obsolete. The postorbital or temporal ridge is nearly as long as the diameter of the orbit.

The opercular fringe is composed of six or seven short filaments. The membranous extensions of the subopercular and interopercular bones are moderate and rather stiff.

The dorsal commences behind the vertical of the anus and the end of the first fourth of the total length, and behind the vertical of the posterior margin of the seventh scale of the lateral line. Its height at the middle equals a half of the greatest height of the body; there are thirty-six rays, none of which appear to be divided, and the articulation is itself almost obsolete.

The anal fin commences in front of the dorsal and before the end of the first fourth (23-100) of the length; about two rays are in advance of the dorsal. The height at the middle equals seven-tenths of the greatest height of the body. There are thirty eight rays, the first two of which appear to be simple, and the rest are simply articulated.

The caudal fin forms an eighth (12-100) of the total length. It has eight articulated rays forked at its terminal half, two simply articulated rays and two short simple ones.

The pectoral fins are angulated behind by the extension of the sixth as well as of the fifth and seventh rays. The superior four rapidly increase towards the fifth. The margin of the fin beneath is much curved forwards, the rays rapidly decreasing. The longest ray exceeds a fifth of the total.

The ventral fins have each three simply articulated and rather stout rays; the median is longest and equals a third of the pectoral's, or 7-100 of the total length.

The scales are of moderate size, finely striated concentrically, and arranged

[Sept.

in eleven rows on each side. The lateral line runs through twelve on the sides of the back, is then deflected through three, and thence runs along the fifth row from the back through thirty-six.

D. 36. A. 2, 36. C. I. 1, 8, 1, I.

The color is a light yellowish brown, rendered darker on the back by congregations of dark dots on the scales. There is a margaritaceous spot behind and beneath the eye, and the operculum is also colored in the same manner.

Total length, 2.3.....	100
Greatest height.....	9½
Height behind dorsal fin.....	3
Thickness of pectorals.....	6
Head—Length from lower jaw to bony operculum.....	17
“ from upper jaw.....	16
Height at preoperculum.....	9
“ behind eyes.....	6
Thickness at preoperculum.....	7
“ behind eyes.....	4
Eye—Diameter.....	4
Distance from snout.....	3
Dorsal—Distance from snout.....	25
Anal—Distance from snout.....	23
Caudal—Length.....	12
Pectoral—Length.....	21
Ventral—Length.....	7

This species is a native of the waters of Lower California. Several specimens were obtained by Mr. John Xantus at Cape St. Lucas, and are now preserved in the Museum of the Smithsonian Institution.

Synopsis of the POLYNEMATOIDS.

BY THEODORE GILL.

The family of Polynematoids has been recently established as now accepted, and its limits very accurately defined by Dr. Günther in his catalogue of the Acanthopterygian fishes of the British Museum. The principal characteristics by which its representatives can be at once recognized are the free filaments on each side of the breast below the pectorals, the protuberant snout, distant dorsal fins, and the abdominal position of the ventrals. The family characters in detail are the following:

Family POLYNEMATOIDÆ Bleeker.

Polynematoidæ *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii.
 Polynemidæ *partim Richardson*, &c.
 Percidæ *pt. Cuvier*, &c.

Body oblong or moderately elongated and highest over the anus, which is subcentral. Caudal peduncle oblong and robust. Scales regularly imbricated, generally ctenoid and muciculated, and of moderate or rather small size, extending on the head and fins.

Lateral line continuous and nearly straight. Continued on the caudal fin. Head oblong, moderate or rather small, compressed and slowly decreasing in size towards the snout, which is high and protuberant. Eyes moderate or large, and wholly or mostly anterior. Nostrils double. Suborbital bones very low; none articulated with the preoperculum. Opercular bones normally developed. Suboperculum oblique and forming the posterior angle. Mouth moderately oblique, and continued under the eyes behind. Teeth acute, always present on the jaws, and generally on the palate. Branchiostegal 1861.]